

## SHORT DESCRIPTION OF THE PHD RESEARCH

During my doctoral research, I delved into understanding the intricate processes by which the brain synthesizes rapidly changing visual stimuli into cohesive entities. Despite the constant influx of diverse visual information, humans effortlessly combine these inputs into meaningful wholes. Central to this cognitive feat is the segmentation of incoming data into temporal and spatial units, crucial for maintaining perceptual continuity. My primary objective was to dissect the mechanisms underlying the formation of these coherent entities and their impact on cognitive functions, particularly visual memory.

To achieve this, I conceptualized, programmed, and executed numerous experiments aimed at assessing human subjects' performance in relevant cognitive tasks. Additionally, I analyzed electroencephalogram (EEG) signals to investigate the neurological underpinnings of these cognitive processes. My research journey also equipped me with a diverse toolkit of quantitative and qualitative methodologies geared to analyze human cognition and perception.

Throughout my doctoral research, I improved my skills in a variety of software tools such as Matlab, Python, E-prime, and Opensesame, which aided in the development of psychological tasks and the subsequent statistical analysis of acquired data using JASP, SPSS, and R. This multifaceted method enabled me to independently organize the whole study process, including task design, data collecting, analysis, and presentation.

Furthermore, I actively contributed to scientific discourse by presenting my findings at esteemed conferences and publishing in peer-reviewed journals. This comprehensive experience has strengthened my ability to conceptualize, execute, and effectively convey research initiatives inside the context of academia.

## PUBLICATIONS AND PRESENTATIONS

**Balta, G.** (2024). Seeing the world through objects and events: a study of temporal and spatial integration in visual perception. (*Thesis*) <https://doi.org/10.33612/diss.877690943>

Akyürek, E. G., & **Balta, G.** (2023). Dissociable event-related potential modulations of intrinsic and extrinsic factors in temporal integration. *Psychophysiology*, e14468. (Publication) <https://doi.org/10.1111/psyp.14468>

**Balta, G.**, & Akyürek, E. G. (2023). The effect of object perception on event integration and segregation. *Attention, Perception & Psychophysics*. (Publication submitted)

Altınok, A., Karabay, A., Jong, D. J., **Balta, G.** & Akyürek, E. G. (2023) The effects of gamma-aminobutyric acid (GABA) on working memory and attention: A randomised, double-blind, placebo-controlled, crossover trial. *Journal of Psychopharmacology* 37(6), 554–565. (Publication) <https://doi.org/10.1177/02698811231161579>

**Balta, G.**, Güven K., & Akyürek E. G. (2022). Object based visual working memory: An object benefit for equidistant memory items presented within simple contours. *Psychology research journal* 87(5), 1569–1589. (Publication) <https://doi.org/10.1007/s00426-022-01757-w>

**Balta, G.**, Lorist, M. M., & Akyürek, E. G. (2020). Adaptive event integration in the missing element task. *Acta Psychologica*, 206, 103065. (Publication) <https://doi.org/10.1016/j.actpsy.2020.103065>

**Balta, G.**, & Akyürek E. G. (2022, September). Object perception through visual temporal integration. Poster session presented at the 22st Conference of the European Society for Cognitive Psychology (ESCoP) in Lille, France. (Poster presentation)

**Balta, G.**, Güven K., & Akyürek E. G. (2022, April). An object benefit for equidistant memory items presented within simple contours. Poster Session presented at the 18th NVP Winter Conference in Egmond, Netherlands. (Poster presentation)

Altınok, A., **Balta, G.**, Karabay, A., & Akyürek, E. G. (2022, April). The effects of gamma-aminobutyric acid (GABA) on working memory and attention. Poster Session presented at the 18th NVP Winter Conference in Egmond, Netherlands. (Poster presentation)

**Balta, G.**, Güven K., & Akyürek E. G. (2019, December). Object-based visual working memory. Poster Session presented at the 17th NVP Winter Conference in Egmond, Netherlands. (Poster presentation)

**Balta, G.**, Güven K., & Akyürek E. G. (2019, September). Object-based visual working memory. Poster session presented at the 21st Conference of the European Society for Cognitive Psychology (ESCoP) in Tenerife, Spain. (Poster presentation)

**Balta, G.**, Lorist M. M., & Akyürek E. G. (2019, February). Investigating adaptive control of temporal integration in the missing element task. Poster session presented at BCN winter meeting in Enschede, Netherlands. (Poster presentation)